

**CalWEA's Pre-Conference Comments on the  
CAISO Presentation at the 8/24/2010 CPUC LTTP Workshop**

- CalWEA was represented in the technical advisory/steering group of the CAISO Renewables Integration Study.
- CalWEA wishes to acknowledge the herculean effort of the CAISO in association with its member utilities, PG&E and SCE, in performing the renewables integration studies to date. This acknowledgment is particularly relevant in light of the fact that the methods, tools, and data that are being used for these studies are not designed for such purposes and, therefore, the effort required to get any results was extensive and difficult, and contributed to the results that we are concerned about.
- Many of CalWEA's concerns with the CAISO study assumptions, methodology and results are shared with WPTF and TURN. These will be presented by Jack Ellis of WPTF and Kevin Woodruff of TURN. So we will not repeat those concerns here. CalWEA has several additional specific concerns, comments and suggestions that we may file separately (or jointly with TURN and/or WPTF) at a later time. We definitely intend to share those concerns and suggestion with CAISO (and CPUC) as part of the ongoing the CAISO Renewables Integration Study. We do hope that the CAISO will provide us with additional opportunities to share our constructive ideas on their study.
- The specific concern that CalWEA wishes to share specifically at the workshop is related to the CAISO's calculation (with PG&E's help) of the capacity contribution of renewable resources and particularly that of wind generation resources. For the purpose of our presentation today, we accept CAISO's use of the Commission's adopted 70% exceedance method for calculating the qualifying capacity of an intermittent resource, although we have appealed that decision because it severely under-represents the capacity value of intermittent renewables and is not the industry-standard approach to this issue.
- The CAISO study concludes that the capacity contribution of renewables, particularly that of wind generation resources, will significantly decline over time as more and newer renewable generators are added to the grid. Based on the CAISO's conclusion, this decline applies to the capacity value of both existing wind resources and even more dramatically to the capacity value of new wind resources whose effective capacity is shown to be less than half that of existing wind resources. Such a conclusion defies logic in several ways. For example, newer wind generators convert wind energy into electric power more efficiently and across a much wider spectrum of wind speeds than the older wind generators. Therefore, new wind resources' capacity contribution should be expected to rise; not decline.

- Our preliminary examination of the CAISO results in this area tells us that these non-intuitive results may be due in part to the CAISO's using a very limited sample size of wind data when calculating the capacity value of wind generation – the CAISO used only one month of wind data from 2005 rather than the three most recent years of wind data for every month that is readily available at least for existing generating resources.
- Likewise, one would logically expect that the diversity adjustment credit included in the Commission's adopted capacity valuation methodology, which boosts intermittent renewables' calculated capacity contribution, to increase as more geographically and technologically diverse renewables are added to the CAISO grid. In some cases, however, the CAISO's calculation shows a declining diversity adjustment, even into a negative range, as we move toward the year 2020.
- Our analysis shows that the deterioration of the diversity adjustment credit is purely a mathematical phenomenon that comes about by including solar thermal's generation profile (which, during peak load hours in July, effectively functions as a base load unit with a capacity factor above 95%) in the calculation of the diversity adjustment credit for intermittent resources. Solar thermal is not an intermittent resource during this peak period, and the highly correlated output of a large amount of new solar thermal generation will mask the diversity benefits of intermittent wind and solar PV. If one takes the single step of removing new solar thermal resources from the CAISO / PG&E NQC calculation in the 33% reference case, existing wind's qualifying capacity as a percent of nameplate jumps from 7% to 12%, new wind increases from 4% to 8%, and solar PV increases from 56% to 69%. Overall, the 33% RPS portfolio in the 33% reference case gains almost 1 GW of RA capacity credit as a result of removing non-intermittent new solar thermal resources from the diversity adjustment calculation for intermittent resources. Removing new solar thermal from this adjustment does not reduce the calculated RA value of these solar thermal resources; thus, the system as a whole gains almost 1 GW of capacity credit as a result of this one change.
- The CAISO / PG&E NQC calculations are the first effort we are aware of that attempts to apply the 70% exceedance approach to a large and diversified portfolio of renewable resources. It is not surprising to CalWEA that this effort raises issues that deserve careful further thought and consideration.